(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 25 August 2005 (25.08.2005)

PCT

(10) International Publication Number $WO\ 2005/078115\ A1$

(51) International Patent Classification⁷: C12Q 1/02

C12P 19/34,

(21) International Application Number:

PCT/US2005/002911

(22) International Filing Date: 31 January 2005 (31.01.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/541,894

4 February 2004 (04.02.2004) US

- (71) Applicant (for all designated States except US): MERCK & CO., INC. [US/US]; 126 East Lincoln Avenue, Rahway, New Jersey 07065-0907 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): CHARTRAIN, Michel [US/US]; 126 East Lincoln Avenue, Rahway, New Jersey 07065 (US). BENTLEY, Laura, Kizer [US/US]; 126 East Lincoln Avenue, Rahway, New Jersey 07065 (US). KRULEWICZ, Barbara Ann [US/US]; 126 East Lincoln Avenue, Rahway, New Jersey 07065 (US). LISTNER, Kristin, M. [US/US]; 126 East Lincoln Avenue, Rahway, New Jersey 07065 (US). SUN, Wen-jun [US/US]; 126 East Lincoln Avenue, Rahway, New Jersey 07065-0907 (US). LEE, Chanyong Brian [US/US]; 126 East Lincoln Avenue, Rahway, New Jersey 07065-0907 (US).

- (74) Common Representative: MERCK & CO., INC.; 126
 East Lincoln Avenue, Rahway, New Jersey 07065-0907
 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR LARGE SCALE PRODUCTION OF PLASMID DNA BY E. COLI FERMENTATION

(57) Abstract: The present invention relates generally to a method for increasing the yield of plasmid DNA production. The method includes the steps of selecting a highly productive clonal subtype of a strain of *E. coli*, including but not limited to the DH5 strain, harboring a DNA plasmid and cultivating said clonal subtype with fed-batch fermentation in a chemically-defined medium. The plasmid DNA production process described herein can generate record quantities of plasmid DNA when said highly productive clonal subtypes are cultivated on an industrial scale. The disclosed method can be used for the production of pharmaceutical grade DNA for use in polynucleotide vaccination and gene therapy treatment regimens.